UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

GENOA COLOR TECHNOLOGIES, LTD., Plaintiff, v. MITSUBISHI ELECTRIC CORP.; MITSUBISHI ELECTRIC US HOLDINGS, INC.; MITSUBISHI ELECTRIC AND ELECTRONICS USA, INC.; MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.; SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS AMERICA, INC., Defendants.	Civil Action No. 07-CIV-6233 (PKC)

DEFENDANTS' JOINT CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

U.S. Patent No. 7,113,152 ("'152 patent") (attached as Exhibit A to the Declaration of Brian G. Bieluch ("Bieluch Decl."), filed concurrently herewith) relates to a "method for producing a color image" using a light source, a color wheel made up of at least four colors, and a spatial modulator. That, in a nutshell, and the use of those elements in combination to produce a color image, are the entirety of what is claimed in the '152 patent. All of these claimed elements, and their use in combination, were known at the time of the alleged invention. As a result, the U.S. Patent & Trademark Office ("PTO") recently acknowledged that the '152 patent may be invalid and perhaps should never have issued.[1]

Now faced with the impossible task of refuting the invalidity of its patent over what was known in the art at the time of the alleged invention, Genoa Color Technologies, Ltd. ("Genoa") submits over 100 pages of briefing and expert opinions that generally ignore the readily understood meanings of claim terms in light of the patent and prosecution history, and instead tout the supposed complexity and importance of the alleged invention. Genoa has failed to direct the Court to any significant support in the '152 patent for adopting its complex constructions. Instead, Genoa urges this Court to rely on unsupported expert testimony. Genoa also proposes constructions for several terms that should not be in dispute.

The task before the Court is simple. The patent uses claim terms having readily

[1] In May 2008, the PTO issued three strongly worded Orders granting reexamination of all claims of the '152 patent. *See* Bieluch Decl., Exs. B-D. As explained in the first Order that issued, several prior art references not previously known to or considered by the PTO "appear[] to disclose the very features that were deemed lacking in the prior art during the original prosecution." Bieluch Decl., Ex. B at 8, 10, 13. The Order thus concludes, among other things, that "a reasonable examiner would have found [the prior art] important in considering the patentability of claims 1-10," that is, all claims of the '152 patent. *Id.* at 9, 10, 13. It therefore appears quite likely that the PTO will find that it should never have allowed the claims of the '152 patent to issue.

understood meanings in view of the claim language, patent specification, and prosecution history. Defendants submit that each of the terms should be construed accordingly, notwithstanding Genoa's attempt to rewrite claims to include terms such as "pixel." If Genoa wanted its alleged invention to include such features, it should have included them in claims 1-10 while they were being considered by the PTO, *before* the PTO issued the '152 patent.

II. BACKGROUND

A. The '152 Patent

Display systems like projection televisions have long used three-color color wheels (with colors such as red, green, and blue) to produce a color image on a screen. Several display systems, like the one claimed in the '152 patent, have added colors to the color wheel. Thus, the '152 patent is directed to a method of producing a color image using a light source, a rotating color wheel, and a spatial light modulator ("modulator"), such as a digital micro-mirror device ("DMD"). More particularly, the '152 patent is directed to the use of a color wheel having filters of at least four primary colors[2] instead of the more conventional three (such as red, green, and blue) to produce a color image to expand the possible color gamut, *i.e.*, the range of colors visible to a human viewer, in the displayed image.

1. Producing a color image

Images are produced by passing light through the rotating color wheel to sequentially produce light of different colors. The light strikes the modulator, which operates in a manner that produces a color image. The use of more than three primary color filters in a color wheel may be advantageous because it produces a wider color gamut than that which any one combination of three color filters can produce.

[2] In the field of electronic image display, the colors red, green, blue, cyan, magenta, and yellow are considered primary colors.

The patent illustrates a system that performs the claimed method in Figure 3B, reproduced below.

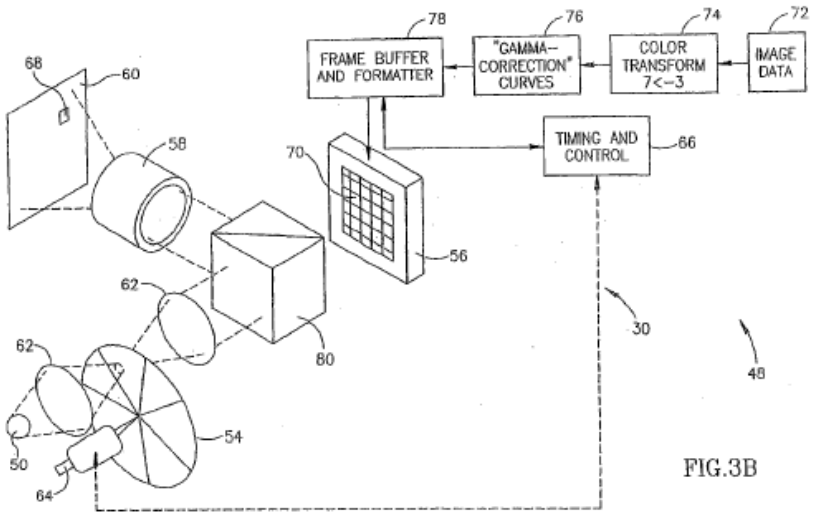


FIG.3B

In Figure 3B, white light from a source 50[3] is passed sequentially through color filters contained in the rotating color wheel 54. *See* Bieluch Decl., Ex. A, '152 patent, col. 8, l. 65 - col. 9, l. 3. The sequentially colored light illuminates a spatially modulated mask 56, or modulator, which determines the color to display for each portion of the image. *See id*. at col. 9, ll. 7-12. The desired color is obtained by consecutively displaying the different colors of light in certain proportions. A projection lens 58 projects the resulting colored light components for the image onto a viewing screen 60, one after the other. *See id*. at col. 9, ll. 12-18. The viewer perceives the sequential color components as one image, with the intensity of each component color determining the perceived color.

2. Converting three-color data

The '152 patent notes that electronic image data 72 is typically given in three-color format, such as RGB, representing red, green, and blue components. *See* Bieluch Decl., Ex. A,

[3] The numbers contained in these descriptions correspond to the labels in Figure 3B.

'152 patent, col. 14, l. 12. In such case (described in the '152 patent as an "exemplary embodiment"), the three-color image data must be converted into a format that is compatible with four or more colors because the color wheel 54 uses four or more colors. *See id.* at col. 14, ll. 16-18 ("In an exemplary embodiment, the use of such data requires the data to be transformed into a format which is suitable for a display including at least four primaries."). The transformation from three-color image data to more than three-color image data is performed by the color transformation block indicated at 74 in Figure 3B. The specification discloses several embodiments of a method for this transformation, which involve solving equations that are derived by locating the color within one of several non-overlapping triangles within a chromaticity diagram. *Id.* at col. 14, l. 19 - col. 17, l. 4. Thus, the written description of the patent describes a methodology for converting three-color data into image data representing an image in terms of at least four different colors: "partitioning the color gamut to transform" the three-color data.

Figure 6A, reproduced below, illustrates a chromaticity diagram—a two-dimensional, horseshoe-shaped representation of the range of colors, or color gamut, that is visible to the human eye.

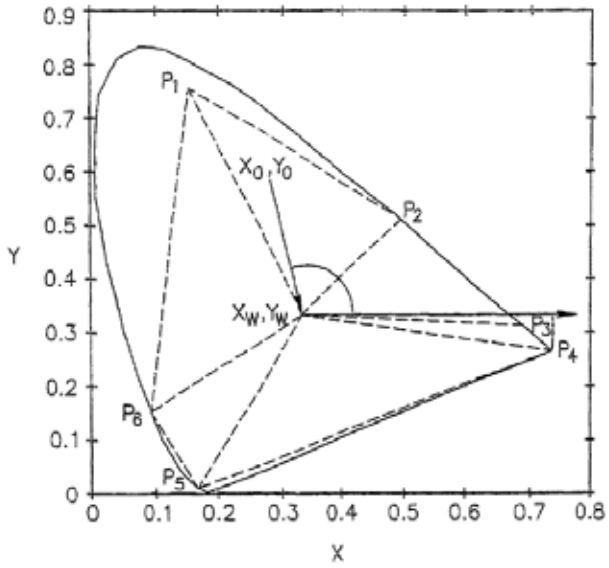


FIG.6A

The diagram shows the primary colors, designated as P1 through P6. The diagram also shows a white point,[4] shown in the center as (X_w, Y_w). Pursuant to the patent's conversion method, the color gamut is divided into non-overlapping triangular partitions, each triangle consisting of two primary colors plus the white point. For example, one triangle is defined by the points P_1, P_2, and (X_w, Y_w). Another is defined by the points P_2, P_3, and (X_w, Y_w). It is this partitioning into non-overlapping triangles that allows every input signal color in the example of Figure 6A to be expressed in terms of two colors plus white. Partitioning the color gamut in this manner is the only method of converting three-color data that is disclosed in the '152 patent.

B. The Claim Terms In Dispute

In its opening brief, Genoa construes twelve claim terms. Defendants believe that only three terms are relevant to this case and require the Court's attention: (1) "color image," (2) "data

[4] A "white point" is the set of coordinates on a chromaticity diagram that define "white" for a particular image. The "white point" changes depending on the image lighting and the application at issue.

signal," and (3) "converting." These terms are highlighted where they exist in the claims of the '152 patent:

> 1. A method of producing a ***color image*** comprising:
>
> projecting polychromatic light from a light source onto a first side of a color wheel having at least four non-white and non-black color filters;
>
> rotating said color wheel such that the polychromatic light from said light source is sequentially filtered by transmission through said at least four color filters to sequentially produce at a second side of said color wheel, opposite said first side, light of at least four colors, each of said at least four colors having a different chromaticity from the others of the at least four colors; and
>
> spatially modulating said light of at least four colors in accordance with a ***data signal*** to produce said ***color image***.
>
> * * *
>
> 5. The method of claim 1, wherein said spatially modulating said light comprises selectively activating a spatial light modulator in accordance with said ***data signal***.
>
> * * *
>
> 7. The method of claim 5, wherein said selectively activating said spatial light modulator comprises activating said spatial light modulator to sequentially modulate the light of said at least four different colors in accordance with said ***data signal***.
>
> 8. The method of claim 1, further comprising ***converting*** three-color data representing said ***color image*** in terms of three colors into converted image data representing said ***color image*** in terms of said at least four different colors.
>
> 9. The method of claim 8, further comprising:
>
> receiving image data representing said ***color image*** in terms of said at least four colors; and
>
> generating a formatted ***data signal*** including a sequence of color data arrays, each array including data representing at least part of said image data corresponding to one of said at least four colors.
>
> 10. The method of claim 9, wherein said spatially modulating said light comprises selectively activating a spatial light modulator based on said formatted ***data signal*** to produce a light pattern corresponding to said ***color image***.

Bieluch Decl., Ex. A, '152 patent, col. 24, l. 26 - col. 26, l. 2.

For the Court's convenience, the parties' claim construction positions are set forth in a

chart, attached hereto as Appendix A. Except for the term "converting," Defendants respectfully submit that the Court should adopt Defendants' joint proposed constructions, which are readily understandable, and which are in accord with the meaning of the claim terms as understood by a skilled artisan reading the patent and prosecution history.

III. LEGAL FRAMEWORK

The proper methodology of construing patent claim limitations in a post-*Phillips* world is straightforward. Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370, 372 (1996). The court construes only those terms "that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Claim terms "are generally given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (internal quotations omitted). The "ordinary meaning" of a given term "is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321. Construction of a disputed claim term focuses primarily on the intrinsic evidence—the claim language itself, the specification of the patent, and its prosecution history. *See id.* at 1313-17 (emphasizing the importance of the intrinsic evidence in claim construction).

The Federal Circuit has cautioned, however, that in construing disputed claim terms, the court may not rewrite the claims by importing language into the claims from the specification or the prosecution history, either to expand or to limit the scope of the claims provided by the meaning of the claim terms to one of ordinary skill in the art. *See id.* at 1323. Rather, proper claim construction must give effect to what the inventors actually claimed in the patent through the words chosen in the claims. *See Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004).

IV. CONSTRUCTION OF THE CLAIM TERMS

A. "color image"

Claim Term	Defendants' Proposed Construction	Genoa's Proposed Construction
color image	image comprised of at least one color	a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors

The term "color image" appears in claim 1 of the '152 patent, and is referenced in claims that depend from claim 1.[5] Defendants propose that the term be construed as an "image comprised of at least one color" and not, as Genoa suggests, to include "a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors." Genoa's Br. at 13.

1. The plain meaning of "color image" is an "image comprised of at least one color"

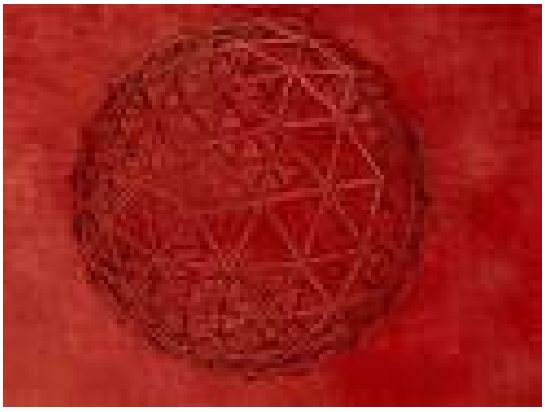
Often, the ordinary meaning of a claim term is "readily apparent . . . to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. In this case, it is easy to understand what a "color image" is. Every color television displays a "color image." Every color camera or color printer produces a "color image." A painting may very well be a "color image." An image with any color in it is a color image. Anyone skilled in the art, or any lay

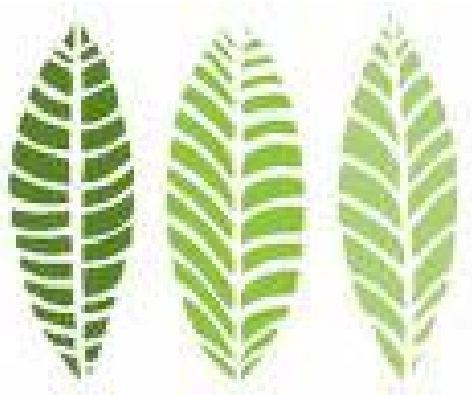
[5] For example, claim 8 of the '152 patent explicitly references and includes "[t]he method of claim 1," but claim 8 "further compris[es] converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors." Bieluch Decl., Ex. A, '152 patent, col. 24, ll. 59-62. In other words, claim 8 includes all of the limitations of claim 1, but also requires an additional "converting" limitation that claim 1 does not. The alleged invention of claim 8 is thus narrower in scope than the alleged invention of claim 1. In patent parlance, claim 8 "depends" from claim 1.

member of a jury, would have such an understanding of "color image." *See generally* Declaration of James F. Shanley ¶¶ 11-14 ("Shanley Decl.").

An inventor can, of course, depart from the ordinary meaning of a term. *See Phillips*, 415 F.3d at 1316-17 (explaining that a construction may depart from the plain meaning of a claim term when the inventor has acted as its own lexicographer or when the inventor has clearly limited the scope of the invention through a disclaimer in the specification or prosecution history). But there simply is no evidence in the patent or prosecution history that the inventors sought to do so here, and certainly none to support a construction of "color image" using words such as "pixel" and "at least four," which Genoa now suggests. If Genoa wanted to claim all of these terms as part of its alleged invention, it could and should have done so at the PTO, *before* the PTO issued the '152 patent.

Construing the term "color image" to require "at least four colors," as Genoa urges, would lead to absurd results. A red image, such as that of the ball illustrated in the margin, would not be a "color image." A picture of three green leaves on a white background, also illustrated in the margin, would not be a "color image." Under Genoa's proposed construction, images on any color televisions that have a three-color color wheel, along with the images produced by the very first color televisions and the vast majority of televisions used in America today, are not "color images."





Examining Genoa's effort to add the term "pixel" to "color image," there similarly is no basis for effectively amending claims 1-10 now to require features that the inventors did not claim. According to Genoa, a "color image" has something to do with a "plurality of pixels." But a Polaroid picture of a rainbow, for example, has nothing to do with pixels whatsoever, and is no less a "color image."[6]

In short, Genoa's proposed construction of "color image" does not reflect the common meaning of the term, as understood by lay people and skilled artisans alike. Genoa offers no substantial evidence showing that the inventors gave "color image" a special definition, but instead relies only on an unsupported expert declaration. This is precisely the strategy that *Phillips* rejects. *See Phillips*, 415 F.3d at 1318 ("conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court").

2. The language of the claims compels a construction of "color image" to mean an "image comprised of at least one color"

The '152 patent itself makes explicit that the Court should construe "color image" in accordance with its plain meaning, and not in accordance with Genoa's unsupported and conclusory expert declaration. Indeed, a plain-meaning construction is the only one supported by the claims themselves, the written description, and the prosecution history of the '152 patent. Looking first to the claims, claim 1 on its face describes "producing a color image" by projecting light onto "a color wheel having at least four non-white and non-black color filters" and

[6] Genoa's use of "pixel" in its proposed construction of the term "color image" is part of a larger effort to improperly import a "pixel" limitation throughout the claims. Genoa uses the word "pixel" (or "pixels") eight different times in its constructions of various claim terms, suggesting that terms such as "color image," "data signal," and "selectively activating" each pertains to "pixels." *See* Genoa Br. at 13-20. Nothing in the specification requires such a stark departure from the plain and ordinary meanings of these terms, and not one of claims 1-10 mentions "pixels" even once.

"spatially modulating said light of at least four colors in accordance with a data signal." Bieluch Decl., Ex. A, '152 patent, col. 24, ll. 26-40. In other words, as is described in claim 1, any image that results from the process of using a color wheel having four or more colors and spatially modulating the "light of at least four colors in accordance with a data signal" is a "color image." The resulting "color image" can be multiple colors or a single color, such as the red-ball or green-leaf images previously depicted. Nothing in the claims requires the "color image" to include a minimum of four colors, as Genoa urges.

Furthermore, claim 8 depends from claim 1 and further involves "converting three-color data representing said *color image* in terms of three colors into converted image data representing said *color image* in terms of said at least four different colors." In other words, "said color image"—the same color image that is referenced in claim 1—is represented in claim 8 *in terms of three colors* prior to conversion and in terms of four or more colors after conversion. Genoa's construction of color image, which would *always* require four or more different colors, renders claim 8 incomprehensible. *See Phillips*, 415 F.3d at 1314 ("Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims."); *Fin Control Sys. Pty v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001) (noting a "presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims").

3. The written description compels a construction of "color image" to mean an "image comprised of at least one color"

The written description of the '152 patent makes clear that at least one intended embodiment of the claimed invention produces a color image having "at least one" of "at least four primary colors." According to the written description:

> [T]here is provided a device for displaying image data of a plurality of colors, the device comprising: (a) a light source for producing light having at least four primary colors; (b) a controller for determining a *combination of at least one* of the at least four primary colors according to the image data for production by the light source, such that the controller is separate from the light source; and (c) a viewing screen for *displaying the image data according to the combination* from the controller.

Bieluch Decl., Ex. A, '152 patent, col. 4, ll. 22-31 (emphasis added). Under the written description, the displayed image thus, quite properly, need only be comprised of "at least one" of the four primary colors produced by a light source—not of at least four colors, as Genoa suggests.

The '152 patent simply does not contain any sort of special definition for "color image" that would justify departing so far from the plain and ordinary meaning of the term.[7]

4. Uncontroverted extrinsic evidence supports a construction of "color image" as meaning an "image comprised of at least one color"

The ordinary meaning of a claim term "may be readily apparent . . . to lay judges, and claim construction in such cases involves little more than the application of the widely accepted

[7] Genoa's references to "full color image" in the '152 patent specification, Genoa's Br. at 13-14, clearly do not limit the term "color image" in the manner proposed by Genoa. *See Phillips*, 415 F.3d at 1314 (finding that the use of the adjective "steel" before "baffles" "strongly implies that the term 'baffles' does not inherently mean objects made of steel"). The patent specifically discusses the narrower term "full color image" twice. Bieluch Decl., Ex. A, '152 patent, col. 10, l. 2; col. 10, l. 18. These two references to "full color image," if anything, demonstrate only why "color image" means something different; the inventor knew how to describe a "full color image" where needed, and specifically did not refer to a "full color image" in the claims.

meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. "In such circumstances, general purpose dictionaries may be helpful." *Id.* Here, widely accepted dictionary definitions confirm that Defendants' proposed construction is appropriate. *See, e.g.*, Bieluch Decl., Ex. E (*Webster's New World Dictionary* 280-81 (2d College ed. 1979) (listing as one definition of "color:" "any color other than black, white, and gray"); *Merriam-Webster's Collegiate Dictionary* 226 (10th ed. 2000) (listing as one definition of "color: a hue as contrasted with black, white, or gray")). Aside from a conclusory expert declaration, Genoa has directed the Court to no extrinsic evidence in support of its effort to import various limitations into the meaning of "color image."

B. "data signal"

Claim Term	Defendants' Proposed Construction	Genoa's Proposed Construction
data signal	a signal that carries data	a signal representing an image in terms of a plurality of pixels, each having exactly three component values, e.g., RGB, XYZ, YCC, etc.

The term "data signal" appears in the body of claim 1 of the '152 patent and is referenced in claims that depend from claim 1. It should be construed, according to its plain and ordinary meaning, as "a signal that carries data." *See generally* Shanley Decl. ¶¶ 15-18.

1. The language of the claims compels a construction of "data signal" to mean "a signal that carries data"

The difference between the parties on the term "data signal" is not difficult to understand. Claim 1 simply refers to a "data signal." Defendants believe the term should be construed to mean "a signal that carries data." Genoa asks that the Court import terms like "pixels," "exactly three component values" or "RGB, XYZ, YCC" into the claim language: "a signal representing

an image in terms of a plurality of pixels, each having exactly three component values, e.g., RGB, XYZ, YCC, etc." Genoa's Br. at 16.

There is simply no basis for importing these limitations into "data signal." The terms "pixels," "component values," "RGB, XYZ, YCC," or "etc." do not appear in any of the claims. Once again, Genoa relies entirely on an unsupported expert declaration, and offers no other significant intrinsic or extrinsic evidence in support of importing these terms into "data signal."

In fact, with respect to Genoa's effort to import "exactly three components" into the meaning of "data signal," the claim language itself makes clear that the inventors had no such definition in mind for "data signal." When the inventors wanted to claim "three-color data," they did so expressly in claim 8. However, in claim 1 and others, the inventors chose "data signal" instead, which should be interpreted differently from "three-color data." The inventors' intent and the PTO's understanding of "data signal" therefore would be defeated if the term "data signal" were construed as a signal with "exactly three components," as Genoa proposes.

Genoa's proposed construction also violates the doctrine of claim differentiation. Under the doctrine of claim differentiation, different claims should not be construed to cover the same thing. *See Phillips*, 415 F.3d at 1314-15 ("For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."); *see also AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1242 (Fed. Cir. 2003). Genoa's proposed construction of "data signal" would mean that independent claim 1 requires the conversion of a data signal having "exactly *three* component values," because that claim expressly provides for "spatially modulating said light *of at least four colors*." Bieluch Decl., Ex. A, '152 patent, claim 1 (emphasis added). If "data signal" means exactly

three as Genoa suggests, claim 1 would have to *implicitly* require conversion in order to get to four.

But conversion of three-color image data is precisely what is claimed by claim 8, which depends from claim 1. Under the doctrine of claim differentiation, claims 1 and 8 should not be construed so as to cover the same thing—*i.e.*, conversion of three color data into data of four or more colors—without clear justification. Genoa's proposed construction of "data signal" would render claim 8 superfluous, without any justification for doing so. Genoa's conflation of the scope of claims 1 and 8 is unmistakable evidence that its proposed construction is incorrect.

2. The written description compels a construction of "data signal" to mean "a signal that carries data"

The written description of the '152 patent does not mention, much less define, "data signal." Rather, the written description explains that the disclosed process uses multiple types of data and signals to produce color images. *See, e.g.*, Bieluch Decl., Ex. A, '152 patent, col. 5, l. 3 ("data suitable for a display using at least four primaries"); *id.* at col. 11, l. 66 - col. 12, l. 15) (explaining that in an exemplary seven-color system the data to the spatial modulator is *not* presented as RGB or some other *three-component data* signal, but rather "is usually presented as 8 bits (256 levels) per each of the seven primary colors"). Indeed, the written description expressly notes that "*most* electronic image data is *typically* given in an RGB or RGB related format, according to some function of the RGB format, or in another format such as YCC-type data," *id.* at col. 14, ll. 12-15 (emphasis added), meaning that not all electronic image data are given in those formats. *See* Shanley Decl. ¶ 16.

In addition, the written description of the '152 patent clearly states that conversion is required in only an "exemplary embodiment," supporting Defendants' conclusion that claim 1 must be construed so as to encompass embodiments where no such conversion is needed. *See id.*

at col. 14, ll. 15-17 ("In an exemplary embodiment, the use of [RGB or YCC-type] data requires the data to be transformed into a format which is suitable for a display including at least four primaries."). Defendants' proposed construction of "data signal" does not require such a conversion in claims 1-7 because the number of components of the "data signal," under a plain and ordinary construction, is not fixed at three, as Genoa proposes, but rather may equal the number of primary colors used to express the resulting color image. For example, the data signal could have four components, and the resulting color image could be expressed as four primary colors. Claim 1 should not be construed in a manner that limits its scope to an "exemplary embodiment." *Id.*

3. The prosecution history compels a construction of "data signal" to mean "a signal that carries data"

The prosecution history further establishes that the inventors expressly contemplated a data signal with more than three components. They filed a provisional application in order to establish an earlier invention date. *See* Bieluch Decl., Ex. F (provisional application). In that provisional application, the inventors disclosed the use of a *four*-component CYMK (cyan, yellow, magenta, black) signal, *i.e.*, a data signal having more than "exactly three component values," clearly indicating that a "data signal" is not limited in the fashion Genoa now proposes. *See id.* at 2 (referring to a "CYMK image file").

Furthermore, in an Examiner's Amendment issued in connection with the Notice of Allowability of the application for the '152 patent, the PTO Examiner was the one who added the phrase "in accordance with a data signal" to claim 1, and the Applicants' attorney authorized the amendment. *See* Bieluch Decl., Ex. G. There is no indication that the Applicants or the Examiner intended "in accordance with a data signal" to have a meaning other than its plain meaning, or that the Applicants or the Examiner intended to limit the new claim term to "exactly

three component values." Once again, Genoa improperly relies only on unsupported assertions by an expert, *see Phillips*, 415 F.3d at 1318, in attempting to have numerous terms read into simple claim language—terms that Genoa could have sought to include within its patent claims during the prosecution of its patent application, but did not.

C. "converting"

Claim Term	Samsung Defendants' Proposed Construction	Mitsubishi Defendants' Proposed Construction	Genoa's Proposed Construction
converting	partitioning the color gamut to transform	transforming	transforming
three-color data representing said color image in terms of three colors	relevant terms have either (1) already been construed (*e.g.*, "color image") or (2) consist of words needing no construction or a plain meaning construction (*e.g.*, "three" means "three")		an image represented by a plurality of pixels, each having exactly three component values
[converting three-color data representing said color image in terms of three colors into][8] converted image data representing said color image in terms of said at least four different colors	relevant terms have either (1) already been construed (*e.g.*, "converting," "color image") or (2) consist of words needing no construction or a plain meaning construction (*e.g.*, "three" means "three")		"converting three color data . . . into converted image data" means, for every pixel in the input data, transforming each three-component pixel into a pixel having at least four (potentially non-zero) colors, each of the at least four colors corresponding to a non-white and non-black filter

The table above lists disputed terms in claim 8. Defendants agree that the only term introduced in claim 8 that needs to be construed is "converting." Although Defendants disagree

[8] Genoa's brief proposes construing the claim language after this footnote. Genoa's Br. at 19. Genoa's proposed definition, however, additionally suggests construing the bracketed text. *Id.*

on the proposed construction of this term, they agree that the remaining terms in claim 8 have already been construed (*e.g.*, "color image") or need no construction (*e.g.*, "three"). Below are Defendants' positions on the term "converting," followed by their joint explanation of why Genoa's proposed constructions for additional terms in claim 8 are improper.

1. The Samsung Defendants' position on "converting"[9]

The term "converting" appears only in claim 8 of the '152 patent, and only one type of converting is described in the patent. As Genoa's own expert, Louis Silverstein, Ph.D., has explained, Genoa claims to have invented an *optimal* method of converting. "Converting" thus should be construed, in the Samsung Defendants' view, to describe the method of "converting" Genoa claims to have invented. That is, "converting" should be construed to mean "partitioning the color gamut to transform," and not more broadly, as Genoa suggests, to "transform" by nearly any method possible.

a) The written description compels a construction of "converting" to mean "partitioning the color gamut to transform"

The Federal Circuit has made clear that "claims must be read in view of the specification, of which they are a part," and that "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315 (internal quotations omitted). Furthermore, "[a]lthough claims need not be limited to the preferred embodiment when the invention is more broadly described, neither do the claims enlarge what is patented beyond what the inventor has described as the invention." *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350, 1355 (Fed. Cir. 2006) (internal quotations omitted).

[9] This section of the brief presents the Samsung Defendants' position on "converting."

Here, the written description discloses only one method of converting, which requires partitioning the color gamut into non-overlapping triangles. *See* Bieluch Decl., Ex. A, '152 patent, col. 14, l. 33 - col. 15, l. 52; *id.* at col. 16, l. 65 - col. 17, l. 2 ("The procedure only requires the definition of a set of triangles, which are based on the existing primaries and any set of additional colors, which preferably can be composed from the other primaries."); FIGs. 3B, 6A-7; *see also* Shanley Decl. ¶¶ 22-23. Where the written description describes an embodiment as *the* invention, rather than simply a preferred embodiment, the claims should be limited accordingly. *See, e.g., Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) ("Here, the written description uses language that leads us to the conclusion that a fuel filter is the only 'fuel injection system component' that the claims cover, and that a fuel filter was not merely discussed as a preferred embodiment."); *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1353 (Fed. Cir. 2001) (limiting the claims to the invention expressly described in the specification).

b) Genoa's expert opinions compel a construction of "converting" to mean "partitioning the color gamut to transform"

Genoa suggests that "converting" simply means "transforming." However, the need to "convert" was well known in the art. *See, e.g.*, Bieluch Decl., Ex. H (Takeyuki Ajito, et al., *Expanded Color Gamut Reproduced by Six-Primary Projection Display*, 3954 Proceedings of SPIE 130, 132-33, at § 2.4 (2000) (describing "[c]olor conversion")); *see also* Shanley Decl. ¶ 19. As Genoa's own expert, Louis Silverstein, has explained, "the necessity of color mapping from 'standard' inputs consisting of color image data for three primary colors (e.g., RGB) or triplets of processed color signals (e.g., YCC, YUV, YC_bC_r, or XYZ) to a system of more than three primaries is *obvious* for a multi-primary color display system," Witness Evaluation at 14 (attached to Genoa's March 3, 2008 letter to the Court) (emphasis added), and

methods were known for performing this mapping or transformation, *see id.* at 15. *See also* Declaration of Louis D. Silverstein ("Silverstein Decl.") at 36 (acknowledging that Genoa knew that there were existing "solutions to multi-primary display color management" but thought that these methods "were not optimal and limited the color imaging potential of multi-primary displays"); Shanley Decl. ¶ 20.

Dr. Silverstein asserts that the "focus" of the alleged invention of the '152 patent is on "the *integration and co-optimization* of field-sequential, multi-primary color display technology with an efficient methodology for multi-primary color mapping and color system management." Silverstein Decl. at 33 (emphasis in original). The "optimized" method identified by Dr. Silverstein consists of partitioning the color gamut, as evidenced by Figure 7 of Dr. Silverstein's Declaration (compare Figure 7 in Dr. Silverstein's report to Figure 6A from the '152 patent). Dr. Silverstein thus acknowledges that Genoa sought to patent one—and only one—method of "converting," the method set out in the Samsung Defendants' proposed claim construction. *See* Shanley Decl. ¶ 21.[10]

Genoa's proposed construction of "converting" nonetheless inexplicably attempts to capture all methods of converting, be they "optimal" or not, be they "obvious" and known in the art or not, and be they known to the inventor at the time of the invention, or not. *See* Shanley

[10] Contrast the term "converting" with the terms "color image" and "data signal." Genoa does not suggest that it invented "color images" or "data signals," and indeed it obviously did not. It merely borrows those terms from the art and ordinary usage, and uses them in the claims to describe the scope of the alleged invention. But Genoa does more than borrow the term "converting." Rather, that term describes the "optimized" conversion method supposedly invented by the inventors named in the '152 patent. For that reason, it is silly to construe the term "converting" to mean "transforming," as one might find in a dictionary. The alleged invention is described in the '152 patent. It is not described in *Webster's*. Nonetheless, as will become apparent during future invalidity proceedings, it is abundantly clear that the method of converting described in the '152 patent was itself well-known in the art.

Decl. ¶ 24. Because the '152 patent discloses exactly one method of converting from three-color data to image data representing an image in terms of four or more colors, and because that method has been described by Genoa and its expert as *the* invention of the '152 patent, the claim term "converting" should be construed so as to describe the scope of what Genoa allegedly invented and actually disclosed—"partitioning the color gamut to transform" three-color data to image data representing an image in terms of four or more colors.

2. The Mitsubishi Defendants' position on "converting"[11]

The Mitsubishi Defendants again urge the Court to adopt the plain and ordinary meaning of a straightforward term. Thus, the Mitsubishi Defendants agree with Genoa that "converting" should be construed as "transforming."

Neither the patent nor the prosecution history requires a definition that departs from this plain meaning. Dependent claim 8 adds the "converting" limitation to the method recited in claim 1. In claiming a narrower method, claim 8 requires converting three-color data to data representing at least four colors. The claim does not say how that conversion is done. And as the PTO recognized during the original prosecution and in the pending reexaminations, the '152 patent issued because the claims required the use of a color wheel with more than three primary color filters. There is no evidence that the PTO Examiner considered a particular method of "converting" three-color to four-or-more color data when he allowed claim 8.

3. Genoa's proposed constructions for claim 8 are redundant, logically inconsistent, and unsupported

As illustrated in the table above, Genoa urges the Court to construe nearly every word of claim 8. Specifically, Genoa urges the Court first to construe "converting," then to construe

[11] This section of the brief presents the Mitsubishi Defendants' position on "converting."

"three-color data representing said color image in terms of three colors," and finally to construe "converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors." Defendants agree that Genoa's proposed constructions are improper.

First, Genoa's proposed constructions are redundant. Genoa requests that the Court construe "converting" first alone and broadly as "transforming," then as part of a thirty-word phrase and narrowly as a type of transforming having something to do with "three-component pixels" and "four (potentially non-zero) color[]" pixels. Genoa also seeks to construe "three-color data representing said color image in terms of three colors" twice, first alone and then as part of the phrase "converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors." Moreover, Genoa asks the Court to construe "color image" again. The claim construction process should not be a complicated exercise in redundancy.

Second, Genoa's proposed constructions are logically inconsistent. Genoa proposes that "three-color data representing said color image in terms of three colors" means "an image represented by a plurality of pixels, each having exactly three component values." In other words, Genoa suggests that "three-color data representing [an] image" should be construed to mean an image itself. This is nonsense. "[D]ata representing" an image cannot be construed to mean "an image."

Third, Genoa again attempts to add various pixel and numerical limitations to straightforward claim terms. For the reasons set forth in Defendants' "color image" section, "color image" has a plain and ordinary meaning to lay people as well as skilled artisans. So does the phrase "data representing said color image." Neither has anything to do with a "plurality of

pixels," nor "a pixel having at least four (potentially non-zero) colors," nor requires something of "every pixel" or a "plurality of pixels." Nothing in the patent or the prosecution history requires a definition of "color image" that deviates from its ordinary meaning.

Fourth, Genoa suggests that the entire phrase "converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors" means "for every pixel in the input data, transforming each three-component pixel into a pixel having at least four (potentially non-zero) colors, each of the at least four colors corresponding to a non-white and non-black filter." With this proposal, Genoa asks the Court to rewrite a patent claim, rather than provide helpful understanding for the jury of one or more key *terms*—the proper purpose of claim construction.

Finally, in its compound proposed constructions, Genoa urges the Court to construe several unambiguous terms, such as "three colors" and "four different colors." The term "three" means "three."

Defendants thus propose that no further construction of either "three-color data representing said color image in terms of three colors" or "converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors" is necessary. At the very least, the constructions proposed by Genoa are not proper.

D. Remaining Claim Terms

Genoa disputes a number of remaining claim terms that simply need not be construed at all or, at the very least, should not be disputed. Claim construction "is not an obligatory exercise in redundancy," but rather "is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement." *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed.

Cir. 1997). For these reasons, and for purposes of judicial economy and simplifying matters before the jury, Defendants briefly propose the following with respect to the remaining terms.

1. "polychromatic light"

Defendants propose that "polychromatic light" be construed as "light consisting of a plurality of colors or spectral wavelengths." Genoa proposes that the term be construed as "light including a plurality of wavelengths." Genoa's Br. at 14. Defendants believe there is no substantial difference between these proposed constructions. Defendants recommend adoption of their construction, but are willing to stipulate to Genoa's construction for the convenience of the Court.

2. "spatially modulating"

Defendants propose that "spatially modulating" be construed as "varying in space." Claim 1 of the '152 patent uses the term broadly, and dependent claims 5-7 and 10 narrow that broad usage of the term where necessary. The specification of the '152 patent explains that the ways of spatially modulating that are disclosed therein are only exemplary. *See* Bieluch Decl., Ex. A, '152 patent, col. 9, ll. 20-54; col. 7, ll. 19-41. Genoa nevertheless proposes that the term be construed narrowly to mean "varying the intensity and/or color and/or angular distribution and/or polarization of light as a function of spatial position." Genoa's Br. at 15. At the outset, Genoa's proposed construction uses a series of "and/or" clauses that render it incomprehensible, especially to a juror. Moreover, Genoa's proposed construction is complex and more confusing than the claim term itself, calling into question its utility to the jury. Because no issue in the case hinges on the meaning of this term, its construction should be kept as simple as possible. Defendants thus recommend that the Court adopt Defendants' construction.

3. "produce said color image"

The claim term "produce said color image" should not be construed, because "color image" will be considered separately, and the term "produce" has a readily understood meaning. If the term is construed at all, it should be construed simply to mean "create a color image."

4. "selectively activating"

The claim term "selectively activating" should not be construed since it has no bearing on the contested issues in this case. If the term is construed at all, it should be construed to mean "varying the operation of."

Genoa proposes that the term be construed to mean "controlling the individual pixels of," despite the fact that the claims neither use the term "pixels" nor describe spatial modulation as a function of controlling pixels. To support its construction, Genoa cites a portion of the written description of the '152 patent that describes spatially modulating to vary color brightness "at different portions of the viewing screen 60, typically according to each pixel of the image." Genoa's Br. at 18 (quoting Bieluch Decl., Ex. A, '152 patent, col. 10, ll. 7-14). Indeed, in its brief, Genoa underlined the phrase "according to each pixel of the image." However, the term "typically" precedes that phrase and evidences that the use of the word "pixels" refers only to a preferred embodiment. As such, it should not limit the patent claims. *See Phillips*, 415 F.3d at 1323. Defendants' proposed construction echoes the simple meaning of the phrase "selectively activating."

5. "digital micro-mirror device (DMD)"

Defendants propose that "digital micro-mirror device (DMD)" be construed as an "arrangement of mirrors, each of which can reflect light either toward or away from the display screen." Genoa proposes that the term be construed to mean "a two-dimensional arrangement of mirrors, each of which has at least two orientations, each of which orientation reflects light in a

different direction." Genoa's Br. at 18. Defendants believe there is no substantial difference between these proposed constructions. Defendants would recommend adoption of their construction, but are willing to stipulate to Genoa's construction for the convenience of the Court.

6. "formatted data signal"

Because "data signal" will be considered separately, the term "formatted data signal" should be construed simply to mean "a predetermined arrangement of a data signal," or "a predetermined arrangement of a signal that carries data."

7. "array(s)"

Defendants propose that "array(s)" be construed to mean "arrangement(s) of rows and columns." Genoa proposes that the term be construed as "multi-dimensional data structures or arrangements of data." Genoa's Br. at 20. Defendants believe their construction to be the more technically accurate one and would recommend that the Court adopt it. Nevertheless, Defendants are willing to stipulate to Genoa's construction for the convenience of the Court.

V. CONCLUSION

For the reasons discussed, Defendants respectfully request that the Court adopt their proposed constructions.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of: (1) this document and Appendix A to this document; (2) the Declaration of James F. Shanley, Ph.D., in Support of Defendants' Joint Claim Construction Brief, and its accompanying Appendix A; and (3) the Declaration of Brian G. Bieluch in Support of Defendants' Joint Claim Construction Brief, and its accompanying exhibits, via the Court's CM/ECF system on this the 23rd day of May 2008. Any other counsel of record will be served by first class U.S. mail on the same date.

/s/ Brian G. Bieluch

Brian G. Bieluch